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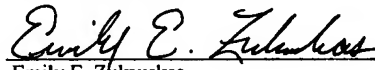
DOCKET NO.: A0848.70021US08

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Casterman et al.  
Serial No.: 10/751,826  
Confirmation No.: 4193  
Filed: January 5, 2004  
For: IMMUNOGLOBULINS DEVOID OF LIGHT CHAINS  
Examiner: Marianne NMN Dibrino  
Art Unit: 1644

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 20<sup>th</sup> day of July, 2006.

  
Emily E. Zukauskas

MAIL STOP AMENDMENT

Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:


Transmitted herewith are the following documents:

- Information Disclosure Statement
- PTO Form 1449 with cited references
- Return Receipt Postcard

If the enclosed papers are considered incomplete, the Mail Room and/or the Application Branch is respectfully requested to contact the undersigned at (617) 646-8000, Boston, Massachusetts.

A check in the amount of \$180 is enclosed to cover the filing fee. If the fee is insufficient, the balance may be charged to Deposit Account 23/2825. A duplicate of this sheet is enclosed.

Respectfully submitted,

By:   
John R. Van Amsterdam, Ph.D., Reg. No.: 40,212  
Wolf, Greenfield & Sacks, P.C.  
600 Atlantic Avenue  
Boston, Massachusetts 02210-2206  
Telephone: (617) 646-8000

Docket No.: A0848.70021US08  
Date: July 20, 2006  
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Emily E. Zukauskas

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**MAIL STOP AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**STATEMENT FILED PURSUANT TO THE DUTY OF  
DISCLOSURE UNDER 37 CFR §§1.56, 1.97 AND 1.98**

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, the Applicant requests consideration of this Information Disclosure Statement.

**PART I: Compliance with 37 C.F.R. §1.97**

This Information Disclosure Statement has been filed more than three months after the filing date of this application and after the mailing date of the first Office action, but before the mailing date of any final action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in this application.

The fee of \$180.00 as set forth in 37 C.F.R. §1.17(p) is enclosed.

PART II: Information Cited

The Applicant hereby makes of record in the above-identified application the information listed on the attached form PTO-1449 (modified PTO/SB/08). The order of presentation of the references should not be construed as an indication of the importance of the references.

The Applicant hereby makes the following additional information of record in the above-identified application.

The Applicant would like to bring to the Examiner's attention the following co-pending applications that may contain subject matter related to this application:

<u>Serial No.</u>	<u>Filing Date</u>	<u>Inventor(s)</u>	<u>Docket No.</u>
11/350,749	02-10-2006	Casterman et al.	*A0848.70021US10
11/350,752	02-10-2006	Casterman et al.	*A0848.70021US11
11/350,900	02-10-2006	Casterman et al.	*A0848.70021US09

\*A copy of this reference is not provided as the Office has waived the requirement under 37 C.F.R. 1.98(a)(2)(iii) for submitting a copy of a cited U.S. patent application if it is scanned to the Image File Wrapper system and is available on Private PAIR.

PART III: Remarks

Documents cited anywhere in the Information Disclosure Statement are enclosed unless otherwise indicated. It is respectfully requested that:

1. The Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims;
2. The enclosed form PTO-1449 (modified PTO/SB/08) be signed by the Examiner to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application;
3. The citations for the information be printed on any patent which issues from this application.

By submitting this Information Disclosure Statement, the Applicant makes no representation that a search has been performed, of the extent of any search performed, or that more relevant information does not exist.

Serial No.: 10/751,826  
Conf. No.: 4193

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Art Unit: 1644

By submitting this Information Disclosure Statement, the Applicant makes no representation that the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b).

By submitting this Information Disclosure Statement, the Applicant makes no representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

Notwithstanding any statements by the Applicant, the Examiner is urged to form his or her own conclusion regarding the relevance of the cited information.

An early and favorable action is hereby requested.

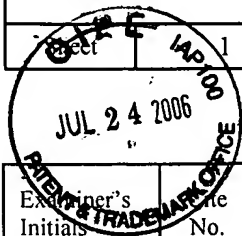
Respectfully submitted,

By:

  
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FORM PTO-1449/A and B (modified PTO/SB/08)  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>	APPLICATION NO.: 10/751,826		ATTY. DOCKET NO.: A0848.70021US08	
	FILING DATE: January 5, 2004		CONFIRMATION NO.: 4193	
	APPLICANT: Casterman et al.			
	GROUP ART UNIT: 1644		EXAMINER: Marianne MNM Dibrino	



### U.S. PATENT DOCUMENTS

Examiner's Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication or Issue of Cited Document MM-DD-YYYY
		Number	Kind Code		
		4,937,183		Ultee et al.	06-26-1990
		5,229,272		Paul et al.	07-20-1993
		5,759,808		Casterman et al.	06-02-1998
		5,800,988		Casterman et al.	09-01-1998
		5,840,526		Casterman et al.	11-24-1998
		5,874,541		Casterman et al.	02-23-1999
		5,981,278		Chang et al.	11-09-1999
		6,005,079		Casterman et al.	12-21-1999
		6,015,695		Casterman et al.	01-18-2000
		6,765,087		Casterman et al.	07-20-2004

### FOREIGN PATENT DOCUMENTS

Examiner's Initials #	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Translation (Y/N)
		Office/ Country	Number	Kind Code			
		WO	94/25591	A1	Unilever N.V.	11-10-1994	

### OTHER ART — NON PATENT LITERATURE DOCUMENTS

Examiner's Initials #	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)
		[No Author Listed] Webster's II New Riverside University Dictionary 1995.	
		AUCOUTURIER et al., Brief report: heavy-chain deposition disease. N Engl J Med. 1993 Nov 4;329(19):1389-93.	
		AZWAI et al., The isolation and characterization of camel (Camelus dromedarius) immunoglobulin classes and subclasses. J Comp Pathol. 1993 Aug;109(2):187-95.	
		BROKAW et al., Conserved patterns of somatic mutation and secondary VH gene rearrangement create aberrant Ig-encoding genes in Epstein-Barr virus-transformed and normal human B lymphocytes. Int Immunol. 1992 Feb;4(2):197-206.	
		CHOTHIA et al., Canonical structures for the hypervariable regions of immunoglobulins. J Mol Biol. 1987 Aug 20;196(4):901-17.	
		CHOTHIA et al., Domain association in immunoglobulin molecules. The packing of variable domains. J Mol Biol. 1985 Dec 5;186(3):651-63.	

EXAMINER:	DATE CONSIDERED:
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# EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

<b>FORM PTO-1449/A and B (modified PTO/SB/08)</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				APPLICATION NO.: 10/751,826	ATTY. DOCKET NO.: A0848.70021US08
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*Sheet	2	of	3		

	COGNE et al., Burkitt's lymphoma cell lines producing truncated mu immunoglobulin heavy chains lacking part of the variable region. Eur J Immunol. 1988 Oct;18(10):1485-9.	
	COGNE et al., Structurally abnormal immunoglobulins in human immunoproliferative disorders. Blood. 1992 May 1;79(9):2181-95.	
	COGNE et al., Immunoglobulin light chain transcripts with altered V regions in Burkitt's lymphoma cell lines producing short mu chains. Eur J Immunol. 1990 Sep;20(9):1905-10.	
	COGNE et al., Production of an abnormal mu chain with a shortened VHIV subgroup variable region in a Burkitt's lymphoma cell line. Mol Immunol. 1990 Sep;27(9):929-34.	
	DAVIES et al., 'Camelising' human antibody fragments: NMR studies on VH domains. FEBS Lett. 1994 Feb 21;339(3):285-90.	
	DAVIES et al., Antibody VH domains as small recognition units. Biotechnology (N Y). 1995 May;13(5):475-9.	
	FRAILE et al., Secretion of proteins with dimerization capacity by the haemolysin type I transport system of Escherichia coli. Mol Microbiol. 2004 Aug;53(4):1109-21.	
	GLOCKSHUBER et al., The disulfide bonds in antibody variable domains: effects on stability, folding in vitro, and functional expression in Escherichia coli. Biochemistry. 1992 Feb 11;31(5):1270-9.	
	GROVER et al., Preliminary studies on camel serum immunoglobulins. Indian J Biochem Biophys. 1983 Aug;20(4):238-40.	
	HERZENBERG et al., Immunochemistry and Molecular Immunology. Volume I. p8.5-8.8.	
	HOLLIGER et al., "Diabodies": small bivalent and bispecific antibody fragments. Proc Natl Acad Sci U S A. 1993 Jul 15;90(14):6444-8.	
	JASSIM et al., The Desert Ship heritage and science. Biologist (London). 2001 Dec;48(6):268-72.	
	JATON et al., Recovery of antibody activity upon reoxidation of completely reduced polyalanyl heavy chain and its Fd fragment derived from anti-2,4-dinitrophenyl antibody. Biochemistry. 1968 Dec;7(12):4185-95.	
	KHAMLICHI et al., Structure of abnormal heavy chains in human heavy-chain-deposition disease. Eur J Biochem. 1995 Apr 1;229(1):54-60.	
	KOKUBU et al., Diverse organization of immunoglobulin VH gene loci in a primitive vertebrate. EMBO J. 1988 Nov;7(11):3413-22.	
	MALE et al., Immunology: An illustrated outline. 1986: 29-30.	
	MARTIN et al., The affinity-selection of a minibody polypeptide inhibitor of human interleukin-6. EMBO J. 1994 Nov 15;13(22):5303-9.	
	MEI et al., Vasoactive intestinal peptide hydrolysis by antibody light chains. J Biol Chem. 1991 Aug 25;266(24):15571-4.	
	MOUNIR et al., Alternate splice sites within the human VH gene coding sequences lead to truncated Ig mu-chains. J Immunol. 1990 Jan 1;144(1):342-7.	
	MUYLDERMANS et al., Sequence and structure of VH domain from naturally occurring camel heavy chain immunoglobulins lacking light chains. Protein Eng. 1994 Sep;7(9):1129-35.	
	NYGREN et al., Binding proteins from alternative scaffolds. J Immunol Methods. 2004 Jul;290(1-2):3-28.	
	OHNO et al., Antigen-binding specificities of antibodies are primarily determined by seven residues of VH. Proc Natl Acad Sci U S A. 1985 May;82(9):2945-9.	

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		PESSI et al., A designed metal-binding protein with a novel fold. <i>Nature</i> . 1993 Mar 25;362(6418):367-9.	
		POLLOK et al., Molecular basis of the cell-surface expression of immunoglobulin mu chain without light chain in human B lymphocytes. <i>Proc Natl Acad Sci U S A</i> . 1987 Dec;84(24):9199-203.	
		POLYMENIS et al., Domain interactions and antigen binding of recombinant anti-Z-DNA antibody variable domains. The role of heavy and light chains measured by surface plasmon resonance. <i>J Immunol</i> . 1995 Mar 1;154(5):2198-208.	
		RAINES et al., A novel proline-rich protein from wheat. <i>Plant Mol Biol</i> . 1991 Apr;16(4):663-70.	
		RODITI et al., Procyclin gene expression and loss of the variant surface glycoprotein during differentiation of <i>Trypanosoma brucei</i> . <i>J Cell Biol</i> . 1989 Feb;108(2):737-46.	
		SHAY et al., Human hybridomas and monoclonal activities: The biology of cell fusion. In: <i>Human Hybridomas and Monoclonal Antibodies</i> . Plenum Pres, New York. 1985:5-20.	
		STANFIELD et al., Crystal structure of a shark single-domain antibody V region in complex with lysozyme. <i>Science</i> . 2004 Sep 17;305(5691):1770-3.	
		SUN et al., Antigen recognition by an antibody light chain. <i>J Biol Chem</i> . 1994 Jan 7;269(1):734-8.	
		SUN et al., Proteolytic activity of an antibody light chain. <i>J Immunol</i> . 1994; 153:5121-5.	
		TRAUNECKER et al., Highly efficient neutralization of HIV with recombinant CD4-immunoglobulin molecules. <i>Nature</i> . 1989 May 4;339(6219):68-70.	
		WEIR et al., eds., "Chapter 13: Ammonium sulphate method to measure antigen-binding capacity," by P.Minden & R.S. Farr. In <i>Handbook of Experimental Immunology</i> . 1967: 13.1.	
		WERNERY et al., Camelid immunoglobulins and their importance for the new-born--a review. <i>J Vet Med B Infect Dis Vet Public Health</i> . 2001 Oct;48(8):561-8.	

\*a copy of this reference is not provided as it was previously cited by or submitted to the office in a prior application, Serial No. \_\_, filed \_\_, and relied upon for an earlier filing date under 35 U.S.C. 120 (continuation, continuation-in-part, and divisional applications).

[NOTE – No copies of U.S. patents, published U.S. patent applications, or pending, unpublished patent applications stored in the USPTO's Image File Wrapper (IFW) system, are included. See 37 CFR §1.98 and 1287OG163. Copies of all other patent(s), publication(s), unpublished, pending U.S. patent applications, or other information listed are provided as required by 37 CFR §1.98 unless 1) such copies were provided in an IDS in an earlier application that complies with 37 CFR §1.98, and 2) the earlier application is relied upon for an earlier filing date under 35 U.S.C. §120.]

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